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HHS Public Access
Author manuscript
AIDS Behav. Author manuscript; available in PMC 2018 December 05.

Published in final edited form as:
AIDS Behav. 2018 August ; 22(8): 2524–2533. doi:10.1007/s10461-018-2165-7.

Health Disparities, Risk Behaviors and Healthcare Utilization among Transgender Women in Los Angeles County: A Comparison from 1998–1999 to 2015–2016

Cathy J. Reback[1,2,3], **Kirsty Clark**[4], **Ian W. Holloway**[3,5], and **Jesse B. Fletcher**[1]

[1]Friends Research Institute, Inc.

[2]David Geffen School of Medicine, Semel Institute of Neuroscience and Human Behavior, University of California, Los Angeles, CA

[3]Center for HIV Identification, Prevention and Treatment Services, University of California, Los Angeles, CA

[4]Department of Epidemiology, Fielding School of Public Health, University of California, Los Angeles, CA

[5]Department of Social Welfare, Luskin School of Public Affairs, University of California, Los Angeles, CA

Abstract

Data from two studies of transgender women in Los Angeles County that used the same methodology and survey assessment (Study 1: 1998–1999, N=244; Study 2: 2015–2016, N=271), compared structural determinants of health, HIV/STI prevalence, HIV risk behaviors, substance use, gender confirmation procedures, and perceived discrimination and harassment/abuse across a 17-year time period. Findings demonstrated that participants in the latter study reported significantly higher access to healthcare insurance and prescription hormones. However, participants in the latter study also reported lower levels of income; and, elevated prevalence of homelessness, HIV and lifetime STIs, receptive condomless anal intercourse with casual partner(s), and reported physical harassment/abuse. Given the timeframe of these results, these findings elucidate specific areas of transgender women's health and risk profiles that improved or worsened across 17 years. While healthcare access has improved, transgender women continue to face significant barriers to good health, indicating the need for increased attention to this population.

Keywords

transgender women; health disparities; HIV risk behaviors; healthcare utilization

Corresponding Author: Cathy J. Reback, Ph.D., Friends Research Institute, Inc., 1419 N. La Brea Ave., Los Angeles, CA 90028, United States of America, reback@friendsresearch.org, Phone: 323-463-1601, Fax: 323-463-0126.

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Introduction

Transgender women face numerous adverse health disparities in comparison to cisgender individuals, including higher rates of substance use; HIV and STI prevalence, incidence and risk behaviors; and, mental health disorders including depression, anxiety and suicidality (1–5). Due to structural barriers (i.e., laws and policies) and interpersonal stigmatization (e.g., prejudice, harassment, abuse) (6), transgender women are more likely than other adult populations to experience unemployment, homelessness, and to earn lower income (7–9), all of which are discrete predictors of poor health. The cyclical nature of these health disparities is perhaps most evident in the high rates of transgender women who engage in sex work (10–13): forced out of legitimate economies due to discrimination, transgender women often turn to sex work to survive, which in turn puts them at increased risk for HIV and STIs, violence, and incarceration (10–12, 14).

Health disparities and significant structural and interpersonal barriers to good health have been well-documented among transgender women; however, no study has investigated how these health disparities and determinants have improved or worsened over time. The last decade saw major changes in the social, political, and medical context around transgender issues (15) such as HIV prevention and biomedical interventions including the availability of Pre-exposure Prophylaxis (PrEP) (16); increased transgender visibility in the media and popular culture (17); and transgender-specific policies such as “Bathroom Bills” making headline news (18). Despite these cultural and medical shifts, it is unclear what the impact of these changes, if any, is on the health of transgender communities. A search of longitudinal and comparison studies of transgender health finds that almost all were published after 2010 and utilized short-term follow-up or comparison (i.e., less than one year to four years) (19–21). An incomplete understanding of how risk profiles and health outcomes among transgender women have or have not changed over longer periods of time limits the ability of public health professionals to implement targeted interventions focused on high-risk transgender populations. For instance, while there have been extensive efforts in the past decade to increase health research and implement tailored interventions for transgender women (22–27), the impact of these efforts remains unclear without data from comparison studies across time.

This study fills a much-needed gap in the literature as the first comparison study of transgender women’s health disparities, HIV risk behaviors, substance use, healthcare utilization, experiences of discrimination and HIV prevalence over two distal time points. Using data from two studies of transgender women in Los Angeles County (LAC) that used the same methodology and survey assessment (Study 1: 1998–1999, N=244; Study 2: 2015–2016, N=271) we sought to compare how structural determinants of health (i.e., housing, healthcare insurance, income), HIV and STI prevalence, HIV risk behaviors, substance use, gender confirmation procedures, and perceived discrimination and harassment/abuse differed across a 17-year time period. The aim of this investigation was to understand how transgender health disparities in LAC have improved or worsened across multiple categories over time, so as to better inform health interventions focused on the unmet needs of transgender women.

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Methods

Participants

Potential participants were deemed eligible to participate if they were 18 years of age or older; lived in LAC; and identified as a transgender woman or as a woman who was assigned the male sex at birth. Given the diversity in transgender populations over the 17 years since Study 1, and the aim to recruit moderate- and high-risk transgender women, the following eligibility was added to Study 2: Use of alcohol (any amount) or an illicit substance (including non-medically prescribed marijuana) or unprotected anal intercourse (either insertive or receptive) in the past 6 months. The added eligibility criterion was deemed necessary to enroll a similar sample profile in Study 2 as was enrolled in Study 1. Due to the cultural shift in transgender visibility over the 17 year period, without the added eligibility criterion no- and low-risk transgender women could enroll in the study. Yet, it was critical to enroll only moderate- and high-risk transgender women to address the aim of the study.

Procedures

Participants in Study 1 were recruited from February 1998 to January 1999 and participants in Study 2 were recruited from July 2015 to September 2016. Potential participants for both studies were recruited via street- and venue-based outreach and from collaborating community-based organizations that provided services to transgender women; most of the agencies were consistent between the two studies. All research assistants identified as a transgender woman (four part-time research assistants for Study 1 and two full-time research assistants for Study 2) and were highly trained on non-invasive outreach and recruitment strategies, and how to maintain participant safety and confidentiality in the field. Following screening and consent, participants were administered The Los Angeles Transgender Health Survey (described below). In Study 1, the research assistants administered a paper assessment; whereas, in Study 2, participants received an Audio Computer-Assisted Self-Interview (ACASI) version of the same assessment. Both versions of the assessment took approximately 45 minutes to complete. Participants in Study 1 were compensated $15 for their time and effort after completing the assessment; participants in Study 2 were compensated $50. Study 1 was approved by the Health Research Association Institutional Review Board and Study 2 was approved by the Friends Research Institute Institutional Review Board and the UCLA South Campus General Institutional Review Board. These Boards provided oversight for all study activities of the respective studies.

Assessment

The Los Angeles Transgender Health Survey: Developed by the first author and colleagues in 1997, in consultation with transgender women community members, and updated as community needs have changed, the Los Angeles Transgender Health Survey consists of seven modules: screening, sociodemographic characteristics, health care access and medical history including HIV services and hormone use/misuse, sexual behaviors (at all stages of gender transition) including HIV risk/protective behaviors, substance use, legal and psychosocial issues including stigma and discrimination, and HIV prevention.

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Analytic Approach

Individual-level data from Study 1 were unavailable; however, the reported prevalence for each categorical variable was used to calculate count data. Fractional values of count data were rounded up to the greatest whole number and prevalence estimates were adjusted accordingly. Individual-level data for Study 2 were available and utilized to derive prevalence estimates. Chi-square tests for categorical variables were conducted to test for differences in sociodemographic factors, structural health determinants, HIV and STI prevalence and risk behaviors, substance use, gender confirmation procedures, and perceived discrimination by study (Study 1: 1998–1999 vs. Study 2: 2015–16). To facilitate interpretation of results for greater than 2×2 contingency tables, two proportions z-tests were performed for each category level to compare observed proportions between Study 1 and Study 2. SAS 9.4 was used to conduct analyses.

Results

Participant Sociodemographics

Weighted averages from the two samples (not presented in tables) demonstrated that participants were predominantly young (18–29 years = 47.2%), Hispanic/Latina (45.7%) or non-African American/Black/non-Hispanic/Latina (35.8%), heterosexual (75.2%), low income (<$1000/month = 66.9%), and had lower overall educational attainment (high school diploma/GED or less = 71.9%). Compared to the participants in Study 1, participants in Study 2 were slightly older, more likely to be African American/Black but less likely to be Non-Black/Non-Hispanic, and more likely to have lower income ($p<.0001$). There was no difference in reported sexual identification between the two studies ($p=0.869$; Table I).

Structural Determinants of Health: Housing Status, Healthcare Insurance, and Income Source

Compared to participants in Study 1, participants in Study 2 were significantly more likely to report being homeless (4.1% vs. 14.8%, $p<.0001$; Table I). Access to healthcare insurance was significantly higher in Study 2 compared to Study 1 (34.8% vs. 77.1%, $p<.0001$). Prevalence of participants with public healthcare insurance (i.e., MediCal, Medicare, Medicaid) increased substantially (17.6% vs. 56.5%), while participants with private healthcare insurance (i.e., CoveredCA, employer, HMO) decreased slightly (17.2% vs. 12.2%). The weighted average of reported sex work as a main source of income in the past 6 months was 42.9%: participants in Study 2 had a lower prevalence of reported sex work (36.2%) compared to participants in Study 1 (49.6%, $p<.05$).

HIV and STI Prevalence

HIV prevalence was higher in the Study 2 sample compared to Study 1 (22.1% vs. 35.4%, $p<.0001$; Table I). Lifetime prevalence of STIs was also higher in Study 2 ($p<.05$). Prevalence of gonorrhea (13.1% vs. 24%, $p<.05$) and syphilis (11.9% vs. 26.3%, $p<.0001$) both doubled between the two samples. Lifetime prevalence of Chlamydia had the highest magnitude change between samples, with prevalence eight-fold higher in Study 2 (2% vs. 17.7%, $p<.0001$). Lifetime prevalence of genital/rectal warts (7% vs. 9.2%) and genital

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herpes (4.1% vs. 5.9%) were slightly higher in the Study 2 sample compared to Study 1, but these differences were not significant.

HIV Risk Behaviors and Substance Use

The prevalence of self-reported engagement in receptive condomless anal intercourse (Table II) did not differ significantly between the two samples in overall chi-square analysis (p=.306). However, compared to Study 1, participants in Study 2 reported higher prevalence of condomless anal intercourse with every partner type: with any partner(s) (47.1% vs. 55.7%), main partner(s) (27.9% vs. 32.1%), casual partner(s) (19.6% vs. 32.8%), and exchange partner(s), i.e., individuals with whom they exchanged sex for things they needed such as money, drugs, shelter or food (13.9% vs. 18.8%). As well, inspection of z-test results demonstrates that proportion of participants engaging in condomless anal intercourse was significantly higher with casual partner(s) (p<.005) and marginally significantly higher with any partner (p=.06).

Prevalence of substance use (Table II) in the past 6 months differed significantly between samples (p<.0001), but direction of change varied by substance. Participants in Study 2 were less likely to use alcohol (77.1% vs. 40.2%, p<.0001)), but more likely to use cannabis (38.4% vs. 54.2%, p<.005). Prevalence of methamphetamine use did not change between samples (~27.5%). Participants in Study 2 were significantly less likely to use cocaine (25.0% vs. 10.0%, p<.0001) and crack cocaine (15.2% vs. 4.1%, p<.0001).

Hormone Use and Gender Confirmation Surgeries

As demonstrated in Table II, non-medically prescribed/non-medically monitored hormone use was significantly lower in Study 2 compared to Study 1 (36.1% vs. 9.9%; p<.0001). Prevalence of participants having had gender confirmation surgeries was also lower overall from Study 1 to Study 2 (p<.05). This significant difference was primarily accounted for by the decrease between Study 1 and Study 2 of participants reporting rhinoplasty (18% vs. 6.3%, p<.0001).

Perceived Discrimination and Abuse

Chi-square analysis found that overall perceived discrimination was not significantly higher from Study 1 to Study 2 (p=.819; Table III), but significant increases were observed in rates of hiring discrimination (47.1% vs. 64.2%, p<.0001), being fired from a job (29.1% vs. 40.2%, p<.05), housing discrimination (29.9% vs. 42.2%, p<.005), and discrimination in accessing health services (13.1% vs. 21.4%, p<.05). Marginal significance was observed for increase in discrimination in accessing HIV prevention services (4.1% vs. 8.5%, p=.06). Reported lifetime harassment and abuse remained similarly high between samples, with a similar prevalence of reported verbal harassment/abuse (79.9% vs. 77.5%). Two proportions z-test demonstrated a significant increase in physical harassment/abuse between Study 1 and Study 2 (47.1% vs. 56.8%, p<.05).

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Discussion

To our knowledge, this study represents the first investigation of how structural determinants of health and risk behaviors among transgender women improved or worsened across a substantial time period, i.e., close to two decades. Findings reported here utilized data from two similar samples of transgender women in LAC using the same outreach and recruitment strategies, the same survey assessment, and both studies conducted by the same investigator (first author). These findings highlight that transgender women continue to face substantial barriers to achieving optimum or even satisfactory health outcomes. Although participants in Study 2 reported greater access to healthcare insurance and utilization, these participants also reported lower income; elevated prevalence of homelessness, HIV and lifetime STIs, condomless anal intercourse, perceived discrimination and harassment/abuse; and a similar prevalence of methamphetamine use. Given the nature of these results across time, the findings presented here help to elucidate specific areas of transgender women's health and risk profiles that improved or worsened across 17 years, thus allowing for targeted public health interventions to assist in improving the health of transgender women.

Improved Determinants of Health between Study 1 and Study 2

Healthcare Insurance and Healthcare Access—Prevalence of transgender women with access to healthcare insurance increased from just over one-third in Study 1 to over three-fourths in Study 2. This increase was likely accounted for by a growth in access to public healthcare insurance (i.e., MediCal, Medicare, Medicaid). MediCal, California's Medicaid program, saw a massive expansion under the Affordable Care Act in 2014 (28). It is a notable commentary on the Affordable Care Act that some of the most vulnerable Californians, such as moderate- and high-risk transgender women, were able to access public healthcare insurance.

Access to public healthcare insurance likely played a prominent role in increasing healthcare access between studies; changes in medically monitored hormone use between Study 1 and Study 2 highlighted positive signs that healthcare access among transgender women increased between the two studies. Nearly half of the sample in Study 2 reported access to prescribed or medically monitored hormones compared to one-fifth of Study 1. Further, non-prescribed and non-medically monitored hormone use, including injectable hormones and "fillers," decreased significantly, from over one-third (36.1%) in Study 1 to approximately one-in-ten (9.9%) in Study 2. This is a promising finding given the known adverse health effects of unsupervised hormone use, including blood clots, elevated liver enzymes, gallstones, decrease in hemoglobin, and depression (29–30). These findings point to the fact that along with healthcare insurance, healthcare access substantially increased, which is encouraging given the considerable health disparities faced by moderate- and high-risk transgender women.

Worsened Health Determinants between Study 1 and Study 2

Homelessness and Income—While the aforementioned improvements in healthcare insurance and healthcare access were indeed promising, there remained numerous health determinants among transgender women that worsened over the 17 year period. Transgender

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women in both studies faced substantial structural (i.e., housing, healthcare insurance, income) and interpersonal (i.e., discrimination, harassment, abuse) barriers to good health. Compared to the Study 1 sample, prevalence of homelessness in the Study 2 sample was nearly three-fold higher, and income was substantially lower, with 83.7% of participants reporting a monthly income of less than $1,000. In addition to the marked decrease in income between studies, increased homelessness among Study 2 participants might be partially explained by the housing market in LAC: with surging rental prices and lack of subsidized housing vacancies, LAC's general homeless population has increased in the observed time period (31). There are limited data documenting the size of the homeless population in the 1990's: in 1994, the U.S. Department of Housing and Urban Development estimated that the size of the homeless population in LAC was between 17,200 and 42,600 (32). In 2016, the Los Angeles Homeless Services Authority estimated that the total size of the LAC homeless population was 46,874, which was 5.7% higher than the previous year (31). The increased number of very low-income transgender women in Study 2, coupled with the LAC housing market likely explains the rise in homelessness between studies.

HIV and STI Prevalence and Sexual Risk Behaviors—HIV prevalence and lifetime prevalence of STIs (i.e., gonorrhea, syphilis, Chlamydia) increased significantly from Study 1 to Study 2. Furthermore, compared to Study 1, Study 2 evidenced elevated rates of receptive condomless anal intercourse with every partner type, including main partner(s), casual partner(s), and exchange partner(s). Engagement in condomless anal intercourse was significantly higher with casual partner(s) ($p<.005$) and marginally significantly higher with any partner ($p=.06$). These results highlight that sexual risk behaviors among transgender women remain a key barrier to adequate prevention of HIV and STIs. As of the last available data in 2011, the LAC Department of Public Health, Division of HIV and STD Programs (DHSP) managed over 200 contracts with 65 community-based organizations and ten county departments dedicated to HIV and STI prevention, testing, and services (33). While HIV incidence among other adult populations in LAC and among MSM have decreased, STI rates have increased over the past decade (34). These findings and currently available data from DHSP demonstrate that transgender women report higher prevalence of HIV and STIs (35).

During the Study 1 years, HIV prevention funding for transgender individuals was not a separate identified population and these services were funded under "gay men." By the Study 2 years, DHSP was allocating $1,392,000 specifically to HIV prevention services for transgender individuals (personal communication via email, 23 June 2017, DHSP). However, the increase in HIV and STI prevalence and sexual risk behaviors across samples highlights that, despite identifying transgender individuals as a funding priority and increased funding efforts, HIV, STIs, and sexual risk behaviors are both highly prevalent and difficult to prevent among transgender women. HIV and STI prevention efforts targeting moderate- and high-risk transgender women must take into account the numerous structural barriers faced by the population, and ensure that HIV and STI prevention efforts consider and target this difficult-to-reach population. For example, while Pre-exposure Prophylaxis (PrEP) is an effective biomedical HIV prevention strategy, the social and structural barriers that transgender women experience are associated with limited PrEP adherence (36–37).

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Substance Use—Prior studies have demonstrated the associations between substance use and HIV and STI risk behaviors among transgender women (38–41). The current study found mixed results regarding substance use among transgender women. Compared to participants in Study 1, transgender women in Study 2 were less likely to drink alcohol, but more likely to use marijuana, both of which have been linked to condomless anal intercourse and HIV risk among transgender women (2, 42). The higher rate of reported marijuana use is most likely a result in the policy shift related to medical marijuana in LAC, which contributed to increased availability and public acceptance of marijuana use.

Furthermore, methamphetamine use remained high and stable across both studies, with approximately one-fourth of both samples reporting methamphetamine use in the past six months; a troubling finding given the strong association between methamphetamine use and HIV sexual risk behaviors across numerous samples including transgender women (38, 43–45). It is interesting to note that the consistently high rate of methamphetamine use is very similar to that found among samples of men who have sex with men in LAC, with approximately one-quarter of both populations reporting methamphetamine use (46). Results from the current study indicate that high rates of substance use have persisted among transgender women in LAC, elucidating that HIV prevention efforts must target multiple levels of risk including both sexual risk and substance use behaviors.

Discrimination, Harassment and Abuse—Compared to Study 1, transgender women in Study 2 experienced similar or higher lifetime rates of discrimination, harassment and abuse in every category surveyed. Lifetime housing discrimination and perceived employment discrimination due to participants' transgender identity, or presentation, significantly increased, with over half of participants in Study 2 reporting some form of discrimination in either category. Transgender women in both studies reported severely high prevalence of verbal and physical harassment and abuse. Verbal harassment and abuse was reported by over three-quarters of participants in both studies, and more than half of the Study 2 participants reported experiencing physical harassment and abuse, a significant increase from Study 1. Among transgender women, experiences of harassment and abuse are associated with anxiety, depression, PTSD, and suicidality (47–50). These mental health correlates have been reported as significant barriers to employment and general functioning among transgender individuals (6, 51); thus, placing transgender individuals at increased risk of poverty (3, 8) and its associated detrimental health consequences. Given these results, the cyclical and syndemic nature of structural and interpersonal barriers to adequate health and wellbeing among transgender women is immense.

Reported discrimination in access to healthcare (including refusal of care) significantly increased from 13.1% in Study 1 to 21.4% in Study 2 ($p<.05$). Across numerous studies of transgender women, discrimination in accessing healthcare services has been linked to healthcare delay and avoidance and overall worse health outcomes, including lack of preventative healthcare (52–53). While the aforementioned increase in access to healthcare insurance in Study 2 was a promising finding, the concurrent higher prevalence of reported healthcare discrimination, as well as the decrease in gender-related surgeries, with the exception of genital reconstruction (i.e., vaginoplasty), highlighted the continued need for transgender-specific clinical and cultural competency trainings for healthcare providers.

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Additionally, with increased coverage of gender confirmation surgeries under the Affordable Care Act, the visibility of transgender persons in healthcare settings will simultaneously increase, further emphasizing the need for transgender-competent healthcare.

Limitations

As individual-level data from Study 1 were unavailable, differences between groups could only be measured utilizing count data, which led to the inability to conduct more robust, multivariate analyses. Although the two samples had some consistency regarding sociodemographic characteristics, data were not longitudinal, both studies used convenience sampling, and any significant differences between samples may be as a result of demographic or sampling differences, or the added eligibility criterion in Study 2, rather than true differences in health and risk behaviors. Furthermore, measures of health service utilization other than medically monitored hormone use were not collected; therefore, we cannot make any inferences regarding how structural, interpersonal and risk behavior differences across samples affected access to healthcare among the samples. These data were limited in the self-reported nature of the survey (e.g., potential recall bias and social desirability bias in Study 1) and sampling bias given the highly stigmatized and hard-to-reach nature of the population. An important limitation of both studies is that data were collected in LAC and may not be representative of transgender women in other regions of the U.S. Additionally, some participants were recruited through collaborating community-based organizations and; therefore, their data may not be representative of transgender women who do not access social service agencies. As well, the high-risk nature of the sample makes these findings unlikely to be generalizable to transgender women who are less vulnerable than the participants in this study. Finally, while we can draw inferences about the effects of cultural, medical, and social shifts (e.g., Affordable Care Act) on differences between study populations, future studies should attempt to examine longitudinal correlates between health determinants and policy/social/cultural changes affecting transgender women. Nevertheless, these findings represent the only long-term comparison data of transgender women and, therefore, provide an important comparison of how structural determinants of health, HIV and STI prevalence, HIV risk behaviors and substance use, gender confirmation procedures, and perceived discrimination and harassment/abuse have improved or worsened over 17 years in LAC.

Conclusions

Findings presented here shed light on the numerous issues still faced by transgender women 17 years after the initial study, particularly homelessness, low education and income, HIV and STI risk, substance use, and perceived discrimination and harassment/abuse. The marked increase in access to healthcare insurance coupled with prescribed and medically monitored hormones highlights the positive impact of government-funded healthcare insurance programs for this vulnerable population. However, these findings must be tempered against the concurrent increase in reported prevalence of perceived healthcare discrimination. To improve transgender women's healthcare outcomes, public health professionals must be trained and culturally competent to work with transgender women,

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and strive to implement health-related interventions that are specifically tailored to address the immense structural and interpersonal barriers faced by this population.

Acknowledgements

Study 1 was supported by the California HIV/AIDS Research Program (formerly University of California Universitywide AIDS Research Program) grant #PC97-LAC-012L and Study 2 was supported by the National Institute on Drug Abuse, grant #R21DA037816. Dr. Reback acknowledges additional support from the National Institute of Mental Health (P30 MH58107). Ms. Clark acknowledges funding support from the UCLA Graduate Division and UCLA Fielding School of Public Health (Fellowship in Epidemiology, 2016–2018). Dr. Holloway acknowledges funding support from the California HIV/AIDS Research Program (RP15-LA-007). The authors would like to acknowledge the work of the research assistants from both Study 1 and Study 2 and their dedication to serve their community, and the participants in both studies.

References

1. Bockting WO, Miner MH, Swinburne Romine RE, Hamilton A, Coleman E. Stigma, mental health, and resilience in an online sample of the US transgender population. Am J Public Health 2013;103(5):943–51. [PubMed: 23488522]
2. Clements-Nolle K, Marx R, Guzman R, Katz M. HIV prevalence, risk behaviors, health care use, and mental health status of transgender persons: Implications for public health intervention. Am J Public Health 2001;91(6):915. [PubMed: 11392934]
3. Grant JM, Mottet L, Tanis JE, Harrison J, Herman J, Keisling M. Injustice at every turn: A report of the national transgender discrimination survey: National Center for Transgender Equality 2011 Available from: http://www.thetaskforce.org/static_html/downloads/reports/reports/ntds_full.pdf. Accessed 20 April 2017.
4. Herbst JH, Jacobs ED, Finlayson TJ, et al. Estimating HIV prevalence and risk behaviors of transgender persons in the United States: a systematic review. AIDS Behav 2008;12(1):1–17. [PubMed: 17694429]
5. James SE, Herman JL, Rankin S, Keisling M, Mottet L, Anafi MA. The Report of the 2015 U.S. Transgender Survey National Center for Transgender Equality 2016 Available from: http://www.transequality.org/sites/default/files/docs/usts/USTS%20Full%20Report%20-%20FINAL%201.6.17.pdf. Accessed 11 May 2017.
6. White Hughto JM, Reisner SL, Pachankis JE. Transgender stigma and health: A critical review of stigma determinants, mechanisms, and interventions. Soc Sci Med 2015;147:222–31. [PubMed: 26599625]
7. Addis S, Davies M, Greene G, MacBride-Stewart S, Shepherd M. The health, social care and housing needs of lesbian, gay, bisexual and transgender older people: a review of the literature. Health Soc Care Community 2009;17(6):647–58. [PubMed: 19519872]
8. Bradford J, Reisner SL, Honnold JA, Xavier J. Experiences of transgender-related discrimination and implications for health: results from the Virginia Transgender Health Initiative Study. Am J Public Health 2013;103(10):1820–9. [PubMed: 23153142]
9. Fletcher JB, Kisler KA, Reback CJ. Housing status and HIV risk behaviors among transgender women in Los Angeles. Arch Sex Behav 2014;43(8):1651–61. [PubMed: 25190499]
10. Hwahng SJ, Nuttbrock L. Sex workers, fem queens, and cross-dressers: Differential marginalizations and HIV vulnerabilities among three ethnocultural male-to-female transgender communities in New York City. Sex Res Social Policy 2007;4(4):36–59. [PubMed: 19079558]
11. Kurtz SP, Surratt HL, Kiley MC, Inciardi JA. Barriers to health and social services for street-based sex workers. J Health Care Poor Underserved 2005;16(2):345–61. [PubMed: 15937397]
12. Poteat T, Wirtz AL, Radix A, et al. HIV risk and preventive interventions in transgender women sex workers. Lancet 2015;385(9964):274–86. [PubMed: 25059941]
13. Sausa LA, Keatley J, Operario D. Perceived risks and benefits of sex work among transgender women of color in San Francisco. Arch Sex Behav 2007;36(6):768–77. [PubMed: 17674180]
14. Nadal K, Vargas V, Meterko V, Hamit S, McLean K, Paludi M. Transgender female sex workers: Personal perspectives, gender identity development, and psychological processes. In: Managing

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diversity in today's workplace: Strategies for employees and employers Vol. 1 Santa Barbara: Praeger; 2012 p. 123–53.

15. MacCarthy S, Reisner SL, Nunn A, Perez-Brumer A, & Operario D (2015). The time is now: attention increases to transgender health in the United States but scientific knowledge gaps remain. LGBT health, 2(4), 287–291. [PubMed: 26788768]
16. Volk JE, Marcus JL, Phengrasamy T, Blechinger D, Nguyen DP, Follansbee S, et al. No new HIV infections with increasing use of HIV preexposure prophylaxis in a clinical practice setting. Clinical Infectious Diseases 2015;61(10):1601–1603. [PubMed: 26334052]
17. Stulberg L (2014). The Perils and Possibilities of Transgender Visibility The Huffington Post, 4, 4.
18. Graham DA (2017). What's Behind the New Wave of Transgender 'Bathroom Bills.' The Atlantic.
19. Birkett M, Newcomb ME, Mustanski B. Does it get better? A longitudinal analysis of psychological distress and victimization in lesbian, gay, bisexual, transgender, and questioning youth. J Adolesc Health 2015;56(3):280–5. [PubMed: 25586226]
20. Mustanski B, Liu RT. A longitudinal study of predictors of suicide attempts among lesbian, gay, bisexual, and transgender youth. Arch Sex Behav 2013;42(3):437–48. [PubMed: 23054258]
21. Newcomb ME, Heinz AJ, Mustanski B. Examining risk and protective factors for alcohol use in lesbian, gay, bisexual, and transgender youth: a longitudinal multilevel analysis. J Stud Alcohol Drugs 2012;73(5):783–93. [PubMed: 22846242]
22. Garofalo R, Johnson AK, Kuhns LM, Cotton C, Joseph H, Margolis A. Life skills: evaluation of a theory-driven behavioral HIV prevention intervention for young transgender women. J Urban Health 2012;89(3):419–31. [PubMed: 22223033]
23. Graham R, Berkowitz B, Blum R, et al. The health of lesbian, gay, bisexual, and transgender people: Building a foundation for better understanding 2011 Available from: https://www.ncbi.nlm.nih.gov/books/NBK64795/. Accessed 20 April 2017.
24. Nemoto T, Operario D, Keatley J, Nguyen H, Sugano E. Promoting health for transgender women: Transgender Resources and Neighborhood Space (TRANS) program in San Francisco. Am J Public Health 2005;95(3):382–4. [PubMed: 15727962]
25. Reback CJ, Lombardi E. HIV risk behaviors of male-to-female transgenders in a community-based harm reduction program. In: Bockting W, Kirk S, editors. Transgender and HIV: Risks, Prevention, and Care New York: The Haworth Press; 2001 p. 59–68.
26. Reback CJ, Shoptaw S, Downing MJ. Prevention case management improves socioeconomic standing and reduces symptoms of psychological and emotional distress among transgender women. AIDS Care 2012;24(9):1136–44. [PubMed: 22670654]
27. Rebchook G, Keatley J, Contreras R, et al. The Transgender Women of Color Initiative: Implementing and Evaluating Innovative Interventions to Enhance Engagement and Retention in HIV Care. Am J Public Health 2017;107(2):224–9. [PubMed: 28075641]
28. California Health Care Foundation. Medi-Cal Facts and Figures: A Program Transforms 2013 Available from: http://www.chcf.org/publications/2013/05/medical-facts-figures. Accessed 11 May 2017.
29. Asscheman H, T'Sjoen G, Lemaire A, et al. Venous thrombo-embolism as a complication of cross-sex hormone treatment of male-to-female transsexual subjects: a review. Andrologia 2014;46(7): 791–5. [PubMed: 23944849]
30. Moore E, Wisniewski A, Dobs A. Endocrine treatment of transsexual people: a review of treatment regimens, outcomes, and adverse effects. J Clin Endocrinol Metab 2003;88(8):3467–73. [PubMed: 12915619]
31. Los Angeles Homeless Services Authority. 2016 Homeless Count Results 2016 Available from: https://documents.lahsa.org/Planning/homelesscount/2016/factsheet/2016-HC-Results.pdf. Accessed 11 May 2017.
32. U.S. Department of Housing and Urban Development. Citizen's Summary: Los Angeles 1994 Available from: https://archives.hud.gov/reports/plan/ca/losangca.html. Accessed 20 April 2017.
33. Fielding JE, Harding C, Perez MJ, et al. 2011 Annual HIV Testing Report 2011 Available from: http://publichealth.lacounty.gov/dhsp/Reports/HIV/HIVTestingServicesAnnualReport2011.pdf. Accessed 05 June 2017.

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

34. Division of HIV and STD Programs (DHSP), County of Los Angeles Public Health. Summary of LACDPH DHSP 2014 Annual HIV/STD Surveillance Report 2016 Available from: http://publichealth.lacounty.gov/dhsp/Reports/HIV-STDsurveillanceReport2014.pdf. Accessed 05 June 2017.
35. Division of HIV and STD Programs (DHSP), County of Los Angeles Public Health. 2013 Sexually Transmitted Diseases Fact Sheet 2015 Available from: http://www.publichealth.lacounty.gov/dhsp/docs/STDEpiFactSheet%20March2015.pdf. Accessed 05 June 2017.
36. Deutsch MB, Glidden DV, Sevelius J, et al. HIV pre-exposure prophylaxis in transgender women: a subgroup analysis of the iPrEx trial. Lancet HIV 2015;2(12):e512–e519. [PubMed: 26614965]
37. Golub SA, Gamarel KE, Rendina HJ, Surace A, Lelutiu-Weinberger CL. From efficacy to effectiveness: facilitators and barriers to PrEP acceptability and motivations for adherence among MSM and transgender women in New York City. AIDS Patient Care STDS 2013;27(4):248–54. [PubMed: 23565928]
38. Reback CJ, Fletcher JB. HIV prevalence, substance use, and sexual risk behaviors among transgender women recruited through outreach. AIDS Behav 2014;18(7):1359–67. [PubMed: 24287786]
39. Reback CJ, Lombardi EL, Simon PA, Frye DM. HIV seroprevalence and risk behaviors among transgendered women who exchange sex in comparison with those who do not. J Psychol Human Sex 2005;17(1–2):5–22.
40. Shoptaw S, Reback CJ. Associations between methamphetamine use and HIV among men who have sex with men: a model for guiding public policy. J Urban Health 2006;83(6):1151–7. [PubMed: 17111217]
41. Vosburgh HW, Mansergh G, Sullivan PS, Purcell DW. A review of the literature on event-level substance use and sexual risk behavior among men who have sex with men. AIDS Behav 2012;16(6):1394–1410. [PubMed: 22323004]
42. Garofalo R, Osmer E, Sullivan C, Doll M, Harper G. Environmental, psychosocial, and individual correlates of HIV risk in ethnic minority male-to-female transgender youth. J HIV AIDS Prev Child Youth 2007;7(2):89–104.
43. Colfax G, Shoptaw S. The methamphetamine epidemic: implications for HIV prevention and treatment. Curr HIV/AIDS Rep 2005;2(4):194–9. [PubMed: 16343378]
44. Marshall BD, Wood E, Shoveller JA, Patterson TL, Montaner JS, Kerr T. Pathways to HIV risk and vulnerability among lesbian, gay, bisexual, and transgendered methamphetamine users: a multi-cohort gender-based analysis. BMC Public Health 2011;11(1):20. [PubMed: 21214930]
45. Plankey MW, Ostrow DG, Stall R, et al. The relationship between methamphetamine and popper use and risk of HIV seroconversion in the multicenter AIDS cohort study. J Acquir Immune Defic Syndr 2007;45(1):85. [PubMed: 17325605]
46. Reback CJ, Shoptaw S, Grella CE. Methamphetamine use trends among street-recruited gay and bisexual males, from 1999 to 2007. J Urban Health 2008;85(6):874. [PubMed: 18843536]
47. Factor RJ, Rothblum ED. A study of transgender adults and their non-transgender siblings on demographic characteristics, social support, and experiences of violence. J LGBT Health Res 2008;3(3):11–30.
48. Kussin-Shoptaw AL, Fletcher JB, Reback CJ. Physical and/or Sexual Abuse Is Associated with Increased Psychological and Emotional Distress Among Transgender Women. LGBT Health 2017;4(4):268–74. [PubMed: 28498023]
49. Lombardi EL, Wilchins RA, Priesing D, Malouf D. Gender violence: Transgender experiences with violence and discrimination. J Homosex 2002;42(1):89–101.
50. Nemoto T, Bödeker B, Iwamoto M. Social support, exposure to violence and transphobia, and correlates of depression among male-to-female transgender women with a history of sex work. Am J Public Health 2011;101(10):1980–8. [PubMed: 21493940]
51. Mizock L, Mueser KT. Employment, mental health, internalized stigma, and coping with transphobia among transgender individuals. Psychol Sex Orientat Gend Divers 2014;1(2):146.
52. Jaffee KD, Shires DA, Stroumsa D. Discrimination and Delayed Health Care Among Transgender Women and Men: Implications for Improving Medical Education and Health Care Delivery. Med Care 2016;54(11):1010–16. [PubMed: 27314263]

Author Manuscript Author Manuscript Author Manuscript Author Manuscript

53. Sanchez NF, Sanchez JP, Danoff A. Health care utilization, barriers to care, and hormone usage among male-to-female transgender persons in New York City. Am J Public Health 2009;99(4): 713–19. [PubMed: 19150911]

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Table I:

Participant Sociodemographic Characteristics and Structural Health Determinants

	Study 1: 1998–1999 (N=244)		Study 2: 2015–2016 (N=271)		Sig
	n	(%)	n	(%)	X^2 (p-value) z-test[p-value]
Age					**39.8 (<.0001)*** **
18–29	132	(54.1%)	109	(40.2%)	9.38[.0022]**
30–39	85	(34.8%)	68	(25.1%)	5.38[.0204]*
40+	27	(11.1%)	94	(34.7%)	38.55[<.0001]***
Racial/Ethnic Identity					**47.2 (<.0001)*** **
Hispanic/Latina	120	(49.2%)	114	(42.1%)	2.34[.1259]
African American/Black	17	(7.0%)	82	(30.3%)	43.37[<.0001]***
Non-Black/Non-Hispanic	107	(43.9%)	75	(27.7%)	14.01[.0002]***
Sexual Orientation					**0.72 (.869)**
Heterosexual/Straight	187	(76.6%)	199	(73.7%)	0.54[.4611]
Homosexual/Gay/Lesbian	22	(15.3%)	28	(10.4%)	0.13[.7230]
Bisexual	14	(5.7%)	17	(6.3%)	0.01[.9446]
Other/Don't Know/Refused	21	(8.6%)	27	(9.9%)	0.14[.7062]
Education Level					**15.9 (.0003)*** **
Less than High School/GED	114	(46.7%)	99	(36.5%)	5.09[.0241]*
High School/GED	54	(22.1%)	104	(38.4%)	15.18[<.0001]***
Greater than High School/GED	76	(31.1%)	68	(25.1%)	2.05[.1526]
Income (past 30 days)					**65.8 (<.0001)*** **
< $1,000	122	(50.0%)	211	(83.7%)	42.40[<.0001]***
$1,000-$2,999	98	(40.2%)	28	(11.1%)	60.23[<.0001]***
>$3,000	24	(9.8%)	13	(5.2%)	4.16[.0413]*
HIV Status					**26.2 (<.0001)*** **

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		Study 1: 1998–1999 (N=244)		Study 2: 2015–2016 (N=271)		Sig
		n	(%)	n	(%)	X^2 (p-value) z-test[p-value]
	HIV Negative	189	(77.5%)	159	(58.7%)	19.83[<.0001] ***
	HIV Positive	54	(22.1%)	96	(35.4%)	10.36[.0013] **
	Unknown/Refused	1	(0.04%)	16	(5.9%)	10.48[.0012] **
STI History (Lifetime)[a]						**14.3 (.0063)** *
	Gonorrhea	32	(13.1%)	65	(24.0%)	9.23[.0024] **
	Syphilis	29	(11.9%)	71	(26.3%)	15.91[<.0001] ***
	Chlamydia	5	(2.0%)	48	(17.7%)	32.44[<.0001] ***
	Genital/Rectal Warts	17	(7.0%)	25	(9.2%)	0.60[.4392]
	Genital Herpes	10	(4.1%)	16	(5.9%)	0.54[.4636]
Housing Status						**16.7 (<.0001)** ***
	Not Homeless	234	(95.9%)	231	(85.2%)	--
	Homeless	10	(4.1%)	40	(14.8%)	--
Healthcare Insurance						**102.9 (<.0001)** ***
	Has Healthcare Insurance	85	(34.8%)	209	(77.1%)	92.00[<.0001] ***
	Does Not Have Healthcare Insurance	156	(63.9%)	54	(19.9%)	101.16[<.0001] ***
	Unknown/Refused	3	(1.2%)	8	(3.0%)	1.09[.2961]
Type of Healthcare Insurance						**29.2 (<.0001)** ***
	MediCal/Medicare/Medicaid	43	(17.6%)	153	(56.5%)	--
	Private/Employer/HMO	42	(17.2%)	33	(12.2%)	--
Sex Work as Main Income Source (past 6 months)						**9.5 (.002)** **
	Sex Work as Main Source of Income	121	(49.6%)	98	(36.2%)	--
	Sex Work not Main Source of Income	123	(50.4%)	173	(63.8%)	--

[a]Multiple responses possible

*p-value<.05

**p-value<.005

*** p-value<.0005

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Table II:

HIV Risk Behaviors, Substance Use and Gender Confirmation Procedures

	Study 1: 1998–1999 (N=244)		Study 2: 2015–2016 (N=271)		Sig
	n	(%)	n	(%)	X^2 (p-value) z-test[p-value]
Receptive Condomless Anal Intercourse[a]					**2.4 (.306)**
With Main Partner(s)	68	(27.9%)	87	(32.1%)	.09[.3422]
With Casual Partner(s)	48	(19.6%)	89	(32.8%)	10.74[.0011]**
With Exchange Partner(s)	34	(13.9%)	51	(18.8%)	1.88[.1700]
Any	115	(47.1%)	151	(55.7%)	3.46[.063]
Substance Use (past 6 months)[a]					**54.1 (<.0001)*****
Alcohol	188	(77.1%)	109	(40.2%)	69.83[<.0001]***
Cannabis	95	(38.9%)	147	(54.2%)	11.47[.0007]**
Methamphetamine	68	(27.9%)	74	(27.3%)	0.002[.965]
Cocaine	61	(25.0%)	27	(10.0%)	19.44[<.0001]***
Crack	37	(15.2%)	11	(4.1%)	17.44[<.0001]***
Poppers	24	(9.8%)	14	(5.2%)	3.44[.0635]
Ecstasy	17	(7.0%)	19	(7.0%)	<.0001[1.00]
Hormone Use (past 6 months)					**64.3 (<.0001)*****
Non-prescribed	88	(36.1%)	27	(9.9%)	--
Prescribed/Medically Monitored	54	(22.1%)	132	(48.7%)	--
Gender Confirmation Surgery[a]					**9.0 (.029)***
Breast Augmentation	51	(21.0%)	32	(11.8%)	7.12[.0073]*
Rhinoplasty	44	(18.0%)	17	(6.3%)	15.90[<.0001]***
Other Facial Surgery	15	(6.1%)	8	(3.0%)	2.37[.1237]
Genital Reconstruction (Vaginoplasty)	7	(2.9%)	13	(4.8%)	0.81[.3668]

[a]Multiple responses possible

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* p-value<.05

** p-value<.005

*** p-value<.0005

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Table III:

Perceived Discrimination and Abuse/Harassment

	Study 1: 1998–1999 (N=244)		Study 2: 2015–2016 (N=271)		Sig
	n	**(%)**	**n**	**(%)**	**X^2 (p-value) z-test[p-value]**
Perceived Discrimination (Lifetime)[a]					**1.5 (.819)**
Job (hiring)	115	(47.1%)	174	(64.2%)	14.52[.0001] ***
Job (fired)	71	(29.1%)	109	(40.2%)	6.51[.0108] *
Housing	73	(29.9%)	115	(42.4%)	8.15[.0043] **
Health services	32	(13.1%)	58	(21.4%)	5.55[.0184] *
HIV prevention services	10	(4.1%)	23	(8.5%)	3.42[.0642]
Abuse/Harassment (Lifetime)[a]					**1.9 (.169)**
Verbal	195	(79.9%)	210	(77.5%)	0.32[.5732]
Physical	115	(47.1%)	154	(56.8%)	4.46[.0348] *

[a]Multiple responses possible

*p-value<.05

**p-value<.005

***p-value<.0005